

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A microwave oscillator of very high stability, ~~characterized in that it comprises~~ comprising:

a one-piece dielectric resonator ~~(1, 7, 10)~~ in the form of a right cylinder frustum hollowed out at mid-height along chords of its cross section, so as to leave a central core and two lateral flanges, ~~[[the]]~~ and having drillholes having symmetry of order N, where $N \geq 4$, at least ~~[[the]]~~ plane faces of the cylinder being covered with a superconducting material ~~(5-6, 8a-8b, 11a-11b)~~, the resonator being placed in a cryogenic chamber ~~[[32]]~~ and being connected to an amplifier via optimized couplings, and the tuning of the resonator being done by a magnetic field and a phase loop.

2. (currently amended): The oscillator as claimed in claim 1, ~~characterized in that wherein~~ the resonator is placed in a triple chamber comprising a first chamber ~~[[30]]~~ for vacuum insulation, a second chamber ~~[[31]]~~ filled with a gas that can liquefy or solidify at the operating temperature of the resonator, and a third chamber ~~[[32]]~~ filled with a gas that remains gaseous at said operating temperature.

3. (currently amended): The oscillator as claimed in claim 1 ~~or 2~~, ~~characterized in that wherein~~ the amplifier ~~[[23]]~~ is placed in the same cryogenic chamber as the resonator.

4. (currently amended): The oscillator as claimed in ~~one of the preceding~~ claim~~[[s]]~~ 1, ~~characterized in that wherein~~, when the cavity has two coupling ports ~~(25, 26)~~ for connecting ~~[[it]]~~ the cavity to the amplifier, the signal is output at a third coupling port ~~[[28]]~~ of the cavity.

5. (currently amended): The oscillator as claimed in ~~one of the preceding~~ claim~~[[s]]~~ 1, ~~characterized in that wherein~~ the resonator is made of single-crystal sapphire.

6. (new): The oscillator as claimed in claim 2, wherein the amplifier is placed in the same cryogenic chamber as the resonator.

7. (new): The oscillator as claimed in claim 2, wherein when the cavity has two coupling ports for connecting it to the amplifier, the signal is output at a third coupling port of the cavity.

8. (new): The oscillator as claimed in claim 3, wherein when the cavity has two coupling ports for connecting it to the amplifier, the signal is output at a third coupling port of the cavity.

9. (new): The oscillator as claimed in claim 2, wherein the resonator is made of single-crystal sapphire.

10. (new): The oscillator as claimed in claim 3, wherein the resonator is made of single-crystal sapphire.

11. (new): The oscillator as claimed in claim 4, wherein the resonator is made of single-crystal sapphire.